

CLAIMS

What is claimed is:

- 5/25
1. A versatile wrist support comprising:
    - a molded plastic exostructure supplying support for resisting motion of said wrist;
    - an inner fabric support attached to said molded exostructure for providing cushioning to the wrist area;
    - a separate, attachable thumb spica member for optionally configuring the wrist support to include a thumb spica;
    - wherein the wrist support has one mode in which the support has no thumb spica, and a second mode in which the support has a thumb spica.
  2. A versatile wrist support as defined in claim 1, wherein said thumb spica member is attached to said support in said second mode by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.
  3. A versatile wrist support as defined in claim 1, wherein said thumb spica member comprises a thumb retention strap.
  4. A versatile wrist support as defined in claim 3, wherein said thumb retention strap comprises hook-and-loop material.
  5. A versatile wrist support as defined in claim 1, wherein said thumb spica member comprises a molded outer exostructure and a softgoods lining in said exostructure.
  6. A versatile wrist support as defined in claim 1, wherein said plastic exostructure comprises a forearm portion and a thumb portion, and said thumb spica member comprises a thumb supporting structure and a stay portion that attaches to said forearm portion of said exostructure.

7. A versatile wrist support as defined in claim 1, wherein said plastic exostructure includes a web-receiving area and a thumb aperture, said thumb spica member being adapted to attach to said plastic exostructure about said thumb aperture.

8. A versatile wrist support as defined in claim 1, wherein said exo-structure comprises plastics of different densities.

9. A versatile wrist support as defined in claim 1, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

10. A versatile wrist support as defined in claim 1, wherein said molded plastic exostructure comprises first and second separate pieces.

11. A versatile wrist support as defined in claim 10, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

12. A versatile wrist support as defined in claim 1, wherein said thumb spica has snaps and wherein said spica member attaches to said support in said second mode with said snaps.

13. A versatile wrist support as defined in claim 1, wherein the inner fabric support is attached to the molded exostructure by directly molding the exostructure onto the inner fabric support within a mold.

14. A versatile wrist support as defined in claim 1, wherein the support has a carpal tunnel pressure relief opening.

15. A versatile wrist support as defined in claim 1, wherein the support has a thumb aperture and comprises an overmold about the thumb aperture.

16. A versatile wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

an inner fabric support attached to said molded exostructure for providing cushioning to the wrist area;

a separate, attachable stay for optional attachment to said molded exostructure to provide additional rigidity to said exostructure;

wherein the wrist support has a first relatively flexible mode in which the attachable stay is not attached to the wrist support, and a second relatively stiff mode in which the attachable stay is attached to the wrist support.

17. A versatile wrist support as defined in claim 16, wherein said stay is formed from the group of materials constituting aluminum, steel and molded plastic.

18. A versatile wrist support as defined in claim 16, wherein said stay is a bendable aluminum stay.

19. A versatile wrist support as defined in claim 18, wherein said support has a third mode in which said aluminum stay has been bent after attachment to the support in order to alter the shape of the support.

20. A versatile wrist support as defined in claim 19, wherein said support includes a molded recess for receiving said stay.

21. A versatile wrist support as defined in claim 16, wherein said stay snaps onto said molded exostructure.

22. A versatile wrist support as defined in claim 16, wherein said stay is attached to said molded plastic exostructure by a method selected from the group constituting ultrasonic welding, snaps, snap fitting, hook-and-loop material, rivets or an adhesive.

23. A versatile wrist support as defined in claim 16, wherein said exo-structure comprises plastics of different densities.

24. A versatile wrist support as defined in claim 16, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

25. A versatile wrist support as defined in claim 16, wherein said stay is a dorsal stay.

26. A versatile wrist support as defined in claim 25, wherein said wrist support has a thumbhole.

27. A versatile wrist support as defined in claim 16, wherein said stay is a palmer stay.

28. A versatile wrist support as defined in claim 27, wherein said wrist support has a thumbhole.

29. A versatile wrist support as defined in claim 16, wherein said molded plastic exostructure comprises first and second separate pieces.

30. A versatile wrist support as defined in claim 29, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

31. A versatile wrist support as defined in claim 16, wherein the inner fabric support is attached to the molded exostructure by directly molding the exostructure onto the inner fabric support within a mold.

32. A versatile wrist support as defined in claim 16, wherein the support has a carpal tunnel pressure relief opening.

33. A versatile wrist support as defined in claim 16, wherein the support has a thumb aperture and comprises an overmold about the thumb aperture.

34. A versatile wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

said molded plastic exostructure comprising a web portion that is adapted to extend across the web of a hand; and

a padded, flexible member extending about at least a portion of said web portion to provide cushioning for the web of the hand.

35. A versatile wrist support as defined in claim 34, wherein said molded plastic exostructure includes a molded recessed area for receiving said padded member.

36. A versatile wrist support as defined in claim 34, wherein said exo-structure comprises plastics of different densities.

37. A versatile wrist support as defined in claim 34, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

38. A versatile wrist support as defined in claim 34, wherein said molded plastic exostructure comprises first and second separate pieces.

39. A versatile wrist support as defined in claim 38, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

40. A versatile wrist support as defined in claim 34, wherein the wrist support has a palm portion, with an overmold on at least part of the palm portion.

41. A versatile wrist support as defined in claim 34, wherein said web portion comprises fabric onto which plastic has been molded.

42. A versatile wrist support as defined in claim 34, wherein said padded flexible member is attached to said exostructure by a method selected from the group constituting ultrasonic welding, a snap, hook-and-loop material, a hook, a rivet, and an adhesive.

43. A versatile wrist support as defined in claim 34, wherein the inner fabric support is attached to the molded exostructure by directly molding the exostructure onto the inner fabric support within a mold.

44. A versatile wrist support as defined in claim 34, wherein the support has a carpal tunnel pressure relief opening.

45. A versatile wrist support as defined in claim 35, wherein the support has a thumb aperture and comprises an overmold about the thumb aperture.

46. A versatile wrist support as defined in claim 35, wherein said web portion is pivotally attached to the exostructure.

47. An adjustable wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

an inner cushion attached to said molded exostructure for providing cushioning to the wrist area;

said exostructure having a forearm portion and a hand portion, said forearm portion including an adjustable radial forearm strap, wherein the forearm portion may be adjusted to fit the forearms of a variety of different users.

48. An adjustable wrist support as defined in claim 47, wherein said adjustable radial forearm strap comprises a strap having hook-and-loop material.

49. An adjustable wrist support as defined in claim 47, wherein said adjustable radial forearm strap comprises a first and second strap, said first strap having a plurality of posts and said second strap having a plurality of holes to receive said posts.

50. An adjustable wrist support as defined in claim 47, wherein said support comprises a closure strap secured to said exostructure and a clip adjustably secured to said strap, said clip having an aperture, said exostructure having a hook to which said clip secures.

51. A versatile wrist support as defined in claim 47, wherein said exo-structure comprises plastics of different densities.

52. A versatile wrist support as defined in claim 47, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

53. A versatile wrist support as defined in claim 47, wherein said molded plastic exostructure comprises first and second separate pieces.

54. A versatile wrist support as defined in claim 53, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

55. A versatile wrist support as defined in claim 47, wherein the wrist support has a palm portion, with an overmold on at least part of the exterior of the palm portion.

56. A method of manufacturing an orthopaedic support comprising the steps of:

providing a mold comprising a first exterior portion having a first cavity portion, a second exterior portion having a second cavity portion, and a core piece;

closing the mold such that the core piece is situated within said first and second cavity portions;

injecting plastic into the mold to form an exostructure of an orthopaedic support about said core piece;

opening the mold and removing the plastic exostructure from said core piece.

57. A method as defined in claim 56, wherein the exostructure has an interior and an exterior, the method further comprising the steps of:

removing the plastic exostructure from off of said core; and

securing padding to the interior of said exostructure, to provide cushioning to the portion of the anatomy.

58. A method as defined in claim 56, wherein the method further comprises the step of placing padding about the core prior to the step of closing the mold, and the step of injecting plastic into the mold further comprises injecting plastic onto said padding, to form an integrally molded, padded support.

59. A method as defined in claim 58, wherein said padding is porous and in the step of injecting plastic into the mold, the plastic flows into said sheet through the pores of the flexible sheet and bonds to said sheet when said plastic sets.

60. A wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

said molded plastic exostructure comprising an ergonomically contoured web portion that is adapted to extend across the web of a hand, said contoured web portion partially defining a thumb opening.

61. A wrist support comprising as defined in claim 60 further comprising a padded, flexible member extending about at least a portion of said web portion to provide cushioning for the web of the hand.

62. A wrist support as defined in claim 60, wherein said molded plastic exostructure includes a molded recessed area for receiving said padded member.

63. A versatile wrist support as defined in claim 60, wherein said exo-structure comprises plastics of different densities.

64. A versatile wrist support as defined in claim 60, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

65. A versatile wrist support as defined in claim 60, wherein said molded plastic exostructure comprises first and second separate pieces.

66. A versatile wrist support as defined in claim 60, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

67. A versatile wrist support as defined in claim 60 wherein the web portion is pivotally attached to the exostructure.

68. A wrist support as defined in claim 60 wherein said support is a volar splint.

69. A wrist support as defined in claim 60 wherein said support is a dorsal splint.

70. An injection molded support for a portion of the anatomy, the support comprising:



an injection molded exostructure that is adapted to at least partially surround the portion of the anatomy to be supported, said exostructure comprising an interior and an exterior; and

an interior padding member, said interior padding member comprising padding and a molded plastic outer structure on at least a portion of one side of said padding, said molded plastic outer structure being bonded to the interior of said exostructure to secure said padding member to said exostructure.

71. An injection molded support as defined in claim 70, wherein the interior padding member is attached to said exostructure by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

72. A support as defined in claim 70, wherein said exo-structure comprises plastics of different densities.

73. A support as defined in claim 70, wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

74. A versatile wrist support as defined in claim 70, wherein said molded plastic exostructure comprises first and second separate pieces.

75. A versatile wrist support as defined in claim 74, wherein said first and second separate pieces are attached to one another by a method selected from the group constituting ultrasonic welding, snaps, hook-and-loop material, rivets or an adhesive.

76. A versatile wrist support as defined in claim 70, wherein the molded plastic outer structure on the interior padding provides support to the portion of the anatomy not otherwise provided by said molded plastic exostructure.

77. A versatile wrist support comprising:

a molded plastic exostructure adapted to at least partially surround a portion of the anatomy, the exostructure supplying support for resisting motion of a wrist;

an inner flexible member attached to said molded exostructure for providing cushioning to the wrist area;

wherein the thickness of said exo-structure is non-uniform to provide different levels of support at different points on the support.

78. A versatile wrist support as defined in claim 77, wherein the inner flexible member is attached to the molded exostructure by directly molding the exostructure onto the inner fabric support within a mold.

79. A versatile wrist support as defined in claim 77, wherein the support has a carpal tunnel pressure relief opening.

80. A versatile wrist support as defined in claim 77, wherein the support has a thumb aperture and comprises an overmold about the thumb aperture.

81. A versatile wrist support as defined in claim 77, wherein the wrist support has a palm portion with an overmold on at least part of the palm portion.

82. An injection molded support for a portion of the anatomy, the support comprising:

an injection molded exostructure that is adapted to at least partially surround the portion of the anatomy to be supported, said exostructure comprising an interior and an exterior; and

an interior padding member, said interior padding member comprising padding and a molded plastic outer structure on at least a portion of one side of said padding, said padding being secured to said exostructure;

wherein said molded plastic outer structure of said interior padding member provides support to the anatomy not otherwise provided by said exostructure.

83. A versatile wrist support as defined in claim 34, wherein said padded, flexible member comprises an overmold.

84. A versatile wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

said molded plastic exostructure comprising a web portion that is adapted to extend across the web of a hand; and

said web portion comprising a flexible fabric that has been molded/secured into place on the exostructure.

85. A wrist support having volar and dorsal plates, the wrist support comprising:

a volar plate and a dorsal plate;

a flexible web portion that is adapted to extend across the web of a user's hand, said flexible web portion extending between said volar plate and said dorsal plate.

86. A wrist support as defined in claim 85, wherein said flexible portion is pivotally attached at an end of the web portion to at least one of said volar plate and said dorsal plate.

87. A wrist support as defined in claim 85, wherein said flexible web portion is an integral part of one of said volar plate and said dorsal plate, and is attached to the other of said volar plate and said dorsal plate.

88. A wrist support as defined in claim 85, wherein said web portion is joined to said volar plate and said dorsal plate with generally "S"-shaped connectors.

89. A wrist support as defined in claim 85, wherein a generally "S"-shaped connector joins said volar and said dorsal plates.

90. A wrist support as defined in claim 85, wherein said flexible web portion maintains said volar and said dorsal plates at a set distance from one another.

91. A wrist support comprising:

a molded plastic exostructure supplying support for resisting motion of said wrist;

said molded plastic exostructure having edges which contact the skin of

a user's hand during digital motion; and

a softer plastic molded over said edges to increase comfort.